



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,634	01/22/2002	Joseph Yudovsky	6063/USA/CM/ WCVD/LE	9148

Patent Counsel
Applied Materials, Inc.
Legal Affairs Department
P.O. Box 450A
Santa Clara, CA 95052

7590 06/30/2003

EXAMINER

KACKAR, RAM N

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 06/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,634

Applicant(s)

YUDOVSKY ET AL.

Examiner

Ram N Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-36 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 & 3
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Correction of claim numbers

1. Duplicate claim numbers found in the application have been corrected in agreement with the applicant. Second claim number 23 has been changed to claim 36.

Double Patenting

2. Claims 1-3, 6-9, 12-13 and 20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 6494955 to Lei et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of support assembly in two parts having an electrode and a channel defined between the two (claims 1-3), a vacuum port (Claim 6), a stepped surface having center portion, middle portion and outer portion with posts extending from them (Claims 7-9) and a ceramic stem (claims 12-13) and a ring defining a plenum (Claim 20) have been claimed at least in claims 1-25 of the above mentioned patent.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3 and 10-11 rejected under 35 U.S.C. 102(b) as being anticipated by Arami et al (US 5904872).

Arami et al disclose a ceramic body (Fig 13 (71+81) and Col 1 lines 26-29 and Col 2 lines 15), having a heating element disposed in it (Fig 13-74), a plate coupled to the ceramic body (91), a channel defined in the plate (94) and heating device conventionally made of aluminum nitride (Col 1 lines 26-29).

Art Unit: 1763

4. Claims 25-26, 29 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Aruga et al (US 5688331).

Aruga et al disclose a ceramic body (Fig 19 -160 and 180), a plate coupled to the ceramic body around a stem (190+207+210+230), a channel defined in the ceramic body (Fig 22-182), a passage for vacuum chucking in communication at support surface (Fig 15-160) and a stem (Fig 12-120).

Regarding claim 29 it would be inherent that when stem is connected to the support body it should be in correct orientation so as the holes for vacuum and purge gas are lined right

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arami et al (US 5904872) in view of Halpin et al (US 6113702).

Arami et al disclose a ceramic body (Fig 13 (71+81) and Col 1 lines 26-29 and Col 2 lines 15), a plate coupled to the ceramic body (91) and a channel defined in the plate (94).

Arami et al do not disclose the channel partially in the ceramic body and apertures in the ceramic body coupled to the radially extended passages.

Art Unit: 1763

Halpin et al disclose a support assembly comprising: two plates having a channel defined between the first plate and the second plate (Fig 5, 10,11), several passages, each passage coupling the central origin with an outlet (Fig 5), radially extended passages and apertures in the top plate to fluidly connect to these passages (Fig 2-144).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to have apertures in the top plate in order to use the passages for gas purge so as to prevent unwanted deposition in the back of the substrate.

7. Claims 6-7, 9, 12, 14, 21-23 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arami et al (US 5904872) in view of Aruga et al (US 5688331).

Arami et al disclose a ceramic body (Fig 13 (71+81)) having a heating element disposed in it, a plate coupled to the ceramic body (91), a channel defined in the plate (94) and heating device conventionally made of aluminum nitride (Col 1 lines 26-29).

Arami et al do not disclose vacuum port in the ceramic body, stepped surface, or posts on the support surface and a ceramic stem connected to the body.

Aruga et al (US 5688331) disclose the support assembly made of several parts of disks made of aluminum nitride ceramic (Col 2 lines 14-19), attached to a ceramic stem (Fig 7) and vacuum chucking passages at surface through steps and posts (Fig 15).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to have vacuum chucking by using step and posts and vacuum channels connected at the support surface for substrate holding.

Regarding claim 14 it would be obvious that when stem is connected to the support body it should be in correct orientation so as the holes for vacuum and purge gas are lined right

Art Unit: 1763

8. Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arami et al (US 5904872) in view of Aruga et al (US 5688331) applied to claim 12 and 1 and further in view of Sinha et al (US 5695568).

Regarding claim 13 Aruga et al do not disclose the stem disposed through a hole in the plate.

Sinha et al disclose a support assembly of comprising: a heater plate which supports the substrate and a stem connected to the support assembly in a way that it is disposed through a hole in the support assembly (Fig 3).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to have a hole in the plate of Arami as modified by Aruga to align the stem easily.

Regarding claim 20 Aruga et al disclose a purge ring but do not define a plenum therewith.

Sinha et al disclose a support assembly comprising a heater plate with a purge ring, which defines a plenum where the plurality of apertures fluidly connect (Fig 6 - 218).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to have a plenum on Arami as modified by Aruga for purge gas passage so as to be able to have uniform and smooth exit of purge gas around the substrate.

9. Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arami et al (US 5904872) in view of Satoh et al (US 6113704).

Art Unit: 1763

As stated before, Arami et al disclose a ceramic body and a plate coupled to the ceramic body but do not disclose fasteners or slots for releasably retaining the plate to the ceramic body.

Satoh et al disclose a support assembly for supporting a work piece comprising, a support plate of ceramic (aluminum nitride) (Col 9 line 45-46) and a detachable (Col 2 line 43-46) second plate.

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to have a fastener like that of Satoh instead of permanent bonding so as to be able to replace different parts of susceptor for different applications.

10. Claim 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Arami et al (US 5904872) in view of Aruga et al (US 5688331) as applied to claim 21 and further in view of Halpin et al (US 6113702).

Neither Arami nor Aruga et al disclose lift pin guide with a tab disposed through the body and plate.

Halpin et al disclose a support assembly comprising having a lift pin guide having a tab (Fig 2a).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to have a lift pin guide like that of Halpin to help in alignment of the two parts.

11. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aruga et al (US 5688331) in view of Halpin et al (US 6113702).

Art Unit: 1763

As stated before, Aruga et al disclose a ceramic body, a plate coupled to the ceramic body and a channel defined in the ceramic body coupled to apertures in the ceramic body but do not disclose the radially extended passages.

Halpin et al disclose a support assembly comprising: two plates having a channel defined between the first plate and the second plate (Fig5, 10,11), several passages, each passage coupling the central origin with an outlet (Fig 5), radially extended passages and apertures in the top plate to fluidly connect to these passages (Fig 2-144).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to have the radially extended passages so as to have uniform flow of purge gas at the substrate.

12. Claims 30-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Aruga et al (US 5688331) in view of Satoh et al (US 6113704).

As stated before, Aruga et al disclose a ceramic body and a plate coupled to the ceramic body but do not disclose fasteners or slots for releasably retaining the plate to the ceramic body.

Satoh et al disclose a support assembly for supporting a work piece comprising, a support plate of ceramic (aluminum nitride) (Col 9 line 45-46) and a detachable (Col 2 line 43-46) second plate.

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to have a fastener like that of Satoh instead of permanent bonding so as to be able to replace different parts of susceptor for different applications.

Art Unit: 1763

Allowable Subject Matter

13. Claims 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if double patenting rejection could be overcome.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK
June 26, 2003


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700